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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/723,615	11/27/2000	Jack Cheng	GRQ-00100	8414

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EXAMINER

NGUYEN, XUAN LAN T

ART UNIT PAPER NUMBER

3683

DATE MAILED: 07/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/723,615

Applicant(s)

CHENG ET AL.

Examiner

Lan Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/15/02 and phone interview on 6/24/02.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-53 and 132-142 is/are pending in the application.
- 4a) Of the above claim(s) 5-13, 15, 18-53 and 133-142 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 14, 16 and 17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 November 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Newly submitted claims 141 and 142 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: claims 141 and 142 are directed towards methods of assembling which are independent and distinct from the two previously claimed inventions of a sonic bearing and a method of controlling, see Office Action dated 3/6/02.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 141 and 142 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

In an effort to ensure that it is clear from the record that there are presently three (3) independent and distinct inventions in the instant application, the inventions are listed here again:

Invention I	a sonic bearing	classified in class 384
Invention II	a method of controlling	classified in class 384
Invention III	a method of assembling	classified in class 29, sub 729.

2. According to Applicant's response dated 4/15/02, Applicant has elected sub-species II(A-J)2 without traverse. However, the requirement is for an election of a sub-species IIA2 or IIB2 or IIC2, etc. The Examiner had clarified the requirement to the

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Applicant during telephone interviews. The Applicant elected sub-species IIA2 on 6/24/02. In an effort to expedite the prosecution of the application, claims 1-4, 14, 16 and 17 have been identified to be readable on the elected species. Claims 5-13, 15, 18-53 and 132-142 have been withdrawn from consideration as being directed to non-elected species and invention.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-4 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Massa.

Re: claims 1 and 2, Massa shows a method of controlling an effective coefficient of friction between a first surface of a first element 1 and a second surface of a second element 2, as in the present invention, the method comprising the steps of: configuring the first and second surfaces to be in slidable contact with one another along an interface between the first surface and the second surface and under a force sufficient to maintain contact and having a static friction therebetween, as shown in figure 1; inducing a repetitive and symmetrical motion in the first surface parallel to the interface thereby altering the effective coefficient of friction, see column 1, lines 66-69.

Re: claim 3, the first element 1 comprises a set of dimensions, a desired dimension of the first element is being varied in response to an electronic signal wherein element 1 is oscillated in response to electronic signal from sources 6 and 9.

Re: claim 4, Massa further provides a transducer 3, wherein said transducer converts the electronic signal into microscopic mechanical displacements to generate the symmetrical motion, see from column 2, line 67 to column 3, line 2.

Re: claim 14, see column 3, lines 1 and 2.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Massa in view of Kamigaito et al.

Re: claim 16, Massa's method of controlling, as discussed in the rejection of claims 2 and 14, lacks a step of further reducing the frictional force by adding a thin film to at least one of the surfaces. Kamigaito teaches the concept of adding a thin film 2 to the surface of element 3 in figure 6 in order to reduce the frictional force between element 3 and element 1. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Massa's method of controlling with

a step of adding a thin film to at least one of the surfaces to further reducing the frictional force between two elements as taught by Kamigaito.

Re: claim 17, Kamigaito further teaches the concept of ion implantation in the thin film in order to enhance the wear resistance between the two sliding elements in column 3, lines 25-42. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified Massa's method to include a step of implanting ions in the thin film in order to enhance wear resistance between two sliding elements as taught by Kamigaito.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Williams, Houghton, Scranton, Maruyama, Funakubo et al. and Takizawa (JP407305724A, JP410141374A) show various piezoelectric or sonic devices.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lan Nguyen whose telephone number is 703-308-8347. The examiner can normally be reached on M-F, 9 to 5:30.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder can be reached on 703-308-3421. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-4177.

XLN
July 8, 2002


JACK LAVINDER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600
7/9/02